PA - 1981

SITE ASSESSMENT REPORT

BOULTER FARM SITE,

CUMBERLAND, RI AND

NORTH ATTLEBORO, MA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE:

SUBJECT: Final Site Assessment - Boulter Farm Site - Cumberland, RI and North Attleboro, Ma.

FROM: Barbara Walsh, Susan Hanamoto, and Jean Mackey

TO: John Hackler
Office of Uncontrolled Waste Sites

THRU: Conrad Desrosiers, Solid Waste Section

The Office of Uncontrolled Waste Sites asked the Waste Management Branch to investigate potential contamination on the Boulter Farm site in Cumberland, RI and North Attleboro, MA. The attached site assessment report summarizes the results of both our preliminary site assessment and site inspection.

EPA originally became involved when John Hackler of the Region I Office of Uncontrolled Waste Sites received a letter from Thomas E. Wright, Chief of the Division of Air and Hazardous Materials of the RI DEM requesting that EPA fund a study to determine the effects of potential contamination from the Boulter Farm site on the Pawtucket and North Attleboro water supplies. Mr. Wright felt EPA should be involved because this is an interstate problem (RI - MA). John Hackler also received a letter (2/27/81) from Raymond Payson, Director of the Department of Public Works for North Attleboro, MA requesting that a representative from EPA contact him so that the threat to the North Attleboro, MA and Pawtucket, RI water supplies could be further investigated and to better coordinate MA and RI efforts.

It was determined on a site inspection conducted on June 10, 1981, that there was no visible evidence on the site of any current source of contamination. Any present threats to human health or the environment would be due to the possible migration of previously dumped wastes into the soil or groundwater. However, no remaining visible evidence (odors, vegetative stress, obvious residues, etc.) for such contamination was found on the site inspection.

If contamination from previous sources remains, then the most direct impact on human health and the environment, considering current use, is likely to result from drinking contaminated groundwater or by direct contact with contaminated sediments. There may also be danger to air quality from any contaminated dust raised by dirt bikes. Any impact on surface water is likely to be the result of discharge of contaminated groundwater or interflow into surface waters (Miller's River). No current source of direct overland discharge of contaminants into surface waters was observed except for perhaps runoff from extreme rainfall.

Our recommendation is that the private water supply wells and Miller's River near the site be tested for evidence of contamination and that the soil in the immediate vicinity of known past chemical dumping be tested for waste residue. The reasons for this recommendation are detailed in Section VI of the attached Trip Report (see Appendix V).

SITE ASSESSMENT REPORT

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I. INTRODUCTION

A. Problem Identification

The Office of Uncontrolled Waste Sites asked the Waste Management Branch to do a preliminary site investigation of the Boulter Farm site primarily to look for potential contamination of water supplies. John Hackler received a letter from Thomas E. Wright, Chief of the Division of Air and Hazardous Materials of the RI DEM requesting that EPA fund a study to determine any impacts on the Pawtucket and North Attleboro water supplies. Mr. Wright felt EPA should be involved because this is an interstate problem since the site and potentially affected water supplies are located in two states (RI - MA). John Hackler also recieved a letter from Raymond Payson, Director of the Department of Public Works for North Attleboro, MA requesting that a representative from EPA contact him so that the threat to the North Attleboro, MA and Pawtucket, RI water supplies could be further investigated and to better coordinate MA and RI efforts.

B. Purpose and Objectives

The purpose of this investigation was to respond to the Office of Uncontrolled Waste Sites' request by conducting a preliminary site assessment and site inspection. Our objectives were to complete the U.S. Environmental Protection Agency's Preliminary Site Assessment and Inspection Forms (#T2070-2 and T2070-3) along with a Trip Report and Site Assessment report summarizing the information obtained during the investigation and recommending any necessary future actions.

C. WORK PERFORMED

The site investigation consisted of 2 phases, preliminary background information and data gathering and a site inspection on 6/10/81.

The preliminary background information and data gathering phase consisted of interviews and/or file reviews with EPA, USGS, RI DEM, MA DEQE, Cumberland, RI, North Attleboro, MA offices, and a literature search for published reports on site geology, etc. The following outline summarizes the results of each contact (see bibliography for contact names and phone numbers).

1. US EPA

   - Enforcement and S & A - no known connection to another enforcement case in Cumberland, RI; no Boulter site file.

   - Permits - no permits held by Boulter Farm site; no Boulter site file.

   - Office of Uncontrolled Sites - no information on wastes or past site activity; 2 letters (from RI DEM and North Attleboro) requesting assistance investigating site, especially potential contamination of North Attleboro water supply in Boulter site file.

2. U.S.G.S.

   - Boston - background hydrologic information on region (see Waste Management Branch site file); no Boulter site file.

   - Providence - Background hydrologic and geologic information on region and site (see bibliography); no current well location map here or at RI Department of Water Resources; no Boulter site file.

3. RI DEM

   - Boulter site file contains incident reports (Appendix I), photos (Appendix I) newspaper articles (WMB site file), and an anonymous report of past dumping (DEM files); no current well location map or inventory.

4. MA DEQE

   - Southeast Regional Office (Lakeville) - obtained public well locations; no Boulter site file.

5. Pawtucket Water Supply Board

   - No Boulter site file; no listing of private wells.

6. Cumberland, RI

   - No Boulter site file; no listing of private wells.

7. North Attleboro, MA

   - Department of Public Works - no well in area; no Boulter site file.

II. Site Background

A. Ownership

The Boulter Farm site consists of the house and property of the Boulter family. According to Rhode Island Department of Environmental Management file information, the owner, Sam Boulter, is deceased. His wife still occupies the house on the site. The mailing address of the Boulter residence is 514 Curran Road, Cumberland, Rhode Island 02864.

Ownership and operation of the site has been in the Boulter family since at least 1946 (Quinn, et. al., 1948.) The financial solvency of the family is unknown.

B. Location

The Boulter Farm is located at approximately 71° 23' 00" W longitude and 41° 55' 45" N latitude on the Pawtucket, Rhode Island - Massachusetts, 7.5 minute quadrangle, topographic map of the United State Geological Survey. The Rhode Island - Massachusetts State line (and also Cumberland, Rhode Island and North Attleboro, Massachusetts town line) runs north/ south through the site approximately through the Boulter family home.

The site boundaries extend approximately from the Boulter family home to Miller's River along Curran Road and northward for about 0.5 miles (see map appended to Trip Report - 7/8/81). The location of past solid waste and chemical dumping is a 15 - 20 acre area shown with the letter F on the Trip Report map (7/8/81) (see Appendix V).

C. General Site Description

The site is an inactive gravel excavation with resultant disturbed glacial sediments and hummocky topography. The area is well vegetated with deciduous trees, shrubs, grasses, and wild flowers. Fauna observed on the site inspection (6/10/81) included birds, insects, and a rabbit.

The only surface water observed on the site was Miller's River which forms the western site boundary. There is one known private well on site and four private wells immediately adjacent to the site (for locations see Site Inspection Form Map, 6/19/81.)

The area adjacent to the site is partially residential and partially undeveloped. In addition to the houses shown on the topographic map, there is a group of new single family homes (since 1975) near the site, to the west of Miller's River. Other cultural features include power lines which run across the site sub-parallel to Miller's River, and a dog house and perhaps a shed north of the Boulter residence.

D. Waste Disposal History

The site is reported to have been used as a solid waste dump until 6/17/76 when the Rhode Island Department of Environmental Management ordered Sam Boulter to stop dumping solid waste within 10 days for failure to apply for a license. In addition, the Rhode Island Department of Environmental Management received an anonymous and unverified letter from a person who claimed that his employer, a furniture refinisher, had dumped wastes including lacquer near Curran Road in Cumberland, Rhode Island. The Rhode Island Department of Environmental Management (DEM) files also contain

2 reports (4/13/81 and 4/16/81, see Appendix I) by Barry W. Muller of the DEM summarizing the events that occurred in response to a fire on the Boulter site (4/12-13/81) involving approximately 25 steel and fiber board barrels containing paint-like substances and old oil and gasoline tanks (see photos in Appendix I). According to the DEM file reports the fire was extinguished by the Valley Falls, Rhode Island Fire Department. One fireman was taken to the hospital with chest pains but it has not been established whether or not his illness was related to the fire. After the fire, Lt. Pratt of DEM's Enforcement Division took 2 samples of the paint-like substances to the University of Rhode Island's Criminology Lab for analysis. The samples were subjected to an extraction procedure test for toxics and shown to have levels of As, Ba, Cd, Se, and Hg below drinking water standards and levels of Cr, Pb, and Ag slightly above drinking water standards but below hazardous waste standards (refer to analysis in Appendix II). Although dumping of oil at the Boulter site was investigated earlier (8/8/80, see Appendix I) no other chemical analysis of wastes or soils is known to have been performed.

Since the fire, either the town or the owner has removed the remaining barrels and waste according to John Quinn, RI DEM. There was no evidence of the barrels, waste, or fire remaining at the site when Barbara Walsh and Susan Hanamoto, Waste Management Branch, U.S. Environmental Protection Agency along with John Quinn, RI DEM inspected the site on 6/10/81 although scattered solid waste was observed. The town has also lined the edge of Curran Road with boulders to prevent access to the site. Current site activity appears to be limited to unauthorized gatherings of local youths and dirt bike riding.

III. Investigation Results

A. Surficial Geology and Hydrology

The surficial deposits on site are poorly sorted glacial sediments containing moderately well rounded cobbles, sands, and silts. The sediments form a kame terrace according to Quinn, et al, 1948. The expected hydraulic conductivity of these sediments ranges from low in the more till-like, poorly sorted areas (10^{-7} cm/sec) to high in better sorted pockets of sands and gravels (up to 10^{0} cm/sec). Thus, the potential for subsurface contaminant migration exists although rates may vary. The expected thickness of the glacial sediments is from 50 - 200 ft. (Quinn et al, 1948). Although reported well yields in adjacent areas of glacial sediments exceed 100 gpm, there is no yield data for the private wells on or near the Boulter site. Pump capacities however, do not exceed 6 gpm (Quinn et al, 1948).

Slopes on the site vary considerably from nearly level to nearly vertical due to the past mining operations. The resulting micro-drainage patterns are chaotic. The net drainage however, is into Miller's River at the western boundary of the site. The flood plain of the river appears to be narrow (few 10's of meters) along the section inspected (see map in Trip Report, Appendix V). The only erosion problem observed was minor gullying of dirt-bike trails especially those parallel to hillslope.

B. Bedrock Geology

Although no bedrock outcrop was observed on the site it is described in the literature (Quinn et al, 1948) as sedimentary rock including shales,

sandstones, and conglomerates of Pennsylvanian age. The two units mapped on the Boulter site are the Pondville conglomerate and other Rhode Island formation (southern half) and the Wamsutta formation (northern half). Generally the bedrock is reported to be a low yielding aquifer. Average yield figures given by Quinn, et al, 1948 are 10 gpm for wells in the shale and 3 gpm for wells in the conglomerate.

C. Ground Water

Data to precisely define depth to ground water in the upper most glacial sediment, flow rates, and flow direction on the site does not currently exist. If such information is deemed to be necessary in the future, a network of wells and piesometers will have to be installed on the site.

Generally it can be estimated that most ground water flows to the southwest and discharges into Miller's River which is in good hydraulic communication with the surrounding aquifer (glacial sediments). There is probably also discharge from the upper most aquifer (glacial sediments) to the lower conglomerate and shale units. (Johnston and Dickerman, 1974 a & b).

D. Water Quality

The MA DEQE sampled 6 water supply wells in the North Attleboro/Cumberland area in late April, 1980 - early July, 1980 (see Site Inspection form map, Appendix IV for locations). Chemical analysis revealed small amounts (microgram/liter) of 1,2 transdichloroethylene, 1,1,1 trichloroethane, trichloroethylene, and tetrachloroethylene (see Appendix III for results of 5 closest wells). Unfortunately a clear connection between these

wells and the Boulter site cannot be drawn. Some of the wells are located up to 1.5 miles from the Boulter site and wells 1 - 4 are upgradient. Wells 5 and 6 (see Site Inspection form map, Appendix IV) are located downgradient but in the Abbott Run drainage basin rather than the Miller's River basin where dumping on the Boulter Farm formerly occurred. If the surface water drainage divide approximates the ground water divide (which is likely in the unconsolidated glacial sediments), then the source of contamination for wells 5 and 6 is probably in the Abbott run drainage area. Although induced flow from the Miller's River basin due to pumping of wells 5 and 6 can't be ruled out, unless analysis of private wells closer to the Boulter Site reveals a connection between the site and types of contamination found by the MA DEQE, it is not likely that the Boulter Farm is the source of the contamination found in water supply wells 5 and 6. The general surface water quality of Abbott Run and its tributaries (including Miller's River) was found to be excellent by Johnston and Dickmann, 1974 (a) (sheet 2).

E. Air Quality

No obvious odors or other air quality problems existed on the site at the time of the site inspection nor have any complaints about air quality been received. It is recommended that futher analysis of atmospheric conditions and air quality be postponed until the results of soil analysis demonstrate the presence of contaminants which could become airborne.

F. Biota

No signs of vegetative stress or animal injury or death were observed on the site inspection of 6/10/81. Plant growth appeared to be quite vigorous. It is recommended that further investigation of biological stress (color Infra-Red air photo analysis, sampling, etc.) await the outcome of soil and water analysis.

G. Hazards

There is no evidence on the site for any current source of contamination or threat to human health and safety. Any barrels of waste remaining after the fire of 4/12-13/81 have been removed. Any present threats to human health or the environment thus would be due to the possible migration of previously dumped wastes into the soil or groundwater. The severity of any impact on human health or the environment cannot be assessed in the absence of data on the types of wastes dumped at the site. It should be noted that no evidence (odors, vegetative stress residues, etc.) for such contamination was found on this inspection.

If contamination from previous sources remains,then the most direct impact on human health and the environment considering current use is likely to result from drinking contaminated groundwater or by direct contact with contaminated sediments. There may also be some danger to air quality from any contaminated dust raised by dirt bikes. Any impact on surface water is likely to be the result of discharge of contaminated ground waste into surface waters (Miller's River). No current source of direct overland discharge of contaminants into surface waters was observed except for perhaps runoff from extreme rainfall.

Current provisions for security at the site, which consist of boulders placed along Curran Road, seem adequate to prevent vehicular entry and thus further dumping incidents. Access by foot and dirt bike is still possible. Further restriction of access does not seem to be warranted unless any future soil and water analyses reveal the presence of residual contamination.

IV. Conclusions

No evidence of any sources of contamination was found during the inspection of the site. There were no barrels, odors, or vegetative stress residues observed. Potential threats to human health and the environment would be from the possible migration of previously dumped wastes into the soil or groundwater. Any hazards would result from direct contact with contaminated soil or surface water, drinking contaminated ground water or breathing contaminated dust raised by motorcycles. Demographic, legal or institutional problems are not anticipated, although according to Mike Frimpter of the U.S.G.S., use of Abbott Run as a public water supply has been a long standing problem between the towns of North Attleboro, MA and Cumberland, RI. Since a definite problem has not been determined, an options analysis discussion would not be appropriate at this time.

V. Recommendations

Our recommendation is to have the local water supply wells and Miller's River near the site sampled and analyzed for evidence of contamination and the soil in the immediate vicinity of known past chemical dumping tested for waste residues. The number and location of residential or other wells in the immediate vicinity of the site is unknown. A door-to-door survey may be needed because the Rhode Island Department of Water resources does not maintain a complete inventory of private wells. Further action should await the out-come of the soil and water analyses. Since this is a two town/two state effort, coordination and information sharing must be maintained at all times. There must also be cooperation between Federal, State, and local officials.

APPENDIX I

SELECTED RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT FILE REPORTS AND PHOTOGRAPHS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR AND HAZARDOUS MATERIALS

Field Investigation Report

Boulter's Farm
Curran Road
Cumberland

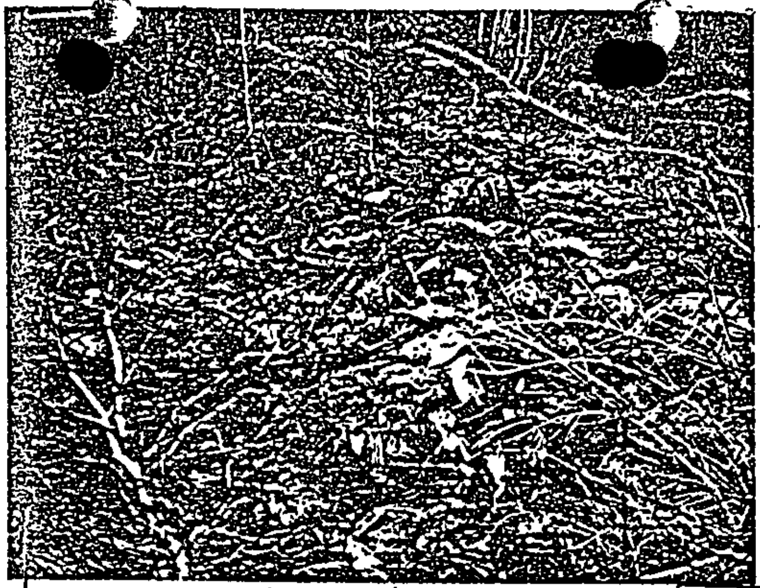
Date of Investigation: 8 September 198

Time of Investigation: 3:30 PM

Received a call from DEM Control at approximately 3:00 PM on 8 September 1980 regarding potential hazardous waste disposal in Cumberland. Accompanied by Sherman Strout, we met Conservation Officer David Tyler on Curran Road in Cumberland. We entered the Boulter property and Mr. Tyler showed us two sites where there is evidence of oil having been dumped. It was impossible to determine the age of the spill but it appeared that the oil had been absorbed by the earth.

Recommended that the sites be sampled to determine precisely what the material is. Upon that determination being made, we must then determine course of action.

Barry W. Muller
Barry W. Muller



Poulter Property 4/15/8[illegible]

Poulter Property 4/15/85

Poulter Property 4/15/85

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR AND HAZARDOUS MATERIALS

Field Investigation Report

Boulter's Farm

Curran Road

Cumberland

Date of Investigation: 13 April 1981

Time of Investigation: ...

I received a call on 13 April 1981 at 10:00 AM from Sergeant Flannagan of DEM's Enforcement Division regarding a brush fire in Cumberland at which chemical wastes were discovered.

Chief Inspector Sherman Strout and I went to the Valley Falls Fire Department and met with Deputy Chief Burns who advised that at 5:38 PM on 12 April 1981 the brush fire alarm was called in to their headquarters. Upon response, the Department found that barrels were on fire from which orange smoke was being generated. The barrels when burning produced an intense flame and it appeared that initially when doused with water the fire accelerated. However, with further application of water the fire was extinguished. Lieutenant Pratt of DEM's Enforcement Division was present when Deputy Chief Burns and Chief Inspector Strout and I had this discussio Lieutenant Pratt informed us that the fire was being investigated by DEM because of its suspicious origin.

Accompanied by Deputy Chief Burns, Mr. Strout and I along with Mr. Pratt went to th site at Boulter's Farm to investigate the barrels. The site is located off Curran Road in Cumberland and the barrels were located 200 feet in next to a body of water. These barrels appeared to be of approximately 25 to 30 in number--two of which could be easily identified as steel barrels and the remainder of fiberboard. By their age, they appeared to have been on the site for a very long time and the material seemed to be a water base paint. The majority of the barrels were burned and there appeared to be pigments of red, orange, yellow and brown. During the investigation we were joined by Sergeant Flannagan. Lieutenant Pratt took two sampl from the site and plans to take them to URI's Criminology Laboratory for analysis. If they are unable to identify them, he will take them to the FBI Laboratory.

At 1:23 PM Sergeant Flannagan called to advise me that one of the fireman had been taken to the hospital with chest pains. At this point it is unknown as to whether or not this was related to the fire or smoke generated by the fire in the barrels.

I intend to have John Leo investigate the barrels on 14 April 1981 to determine if they might contain hazardous materials.

Barry W. Muller

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR AND HAZARDOUS MATERIALS

Field Investigation Report

Boulter's Farm

Curran Road

Cumberland, RI

Date of Investigation: 16 April 1981

Accompanied by John Leo, we met with Robert Blauvelt, Chief Engineer, and Russ Knibb, Treatment Plant Superintendant, of the Pawtucket Water Supply. We travelled to Boulter's Farm in order to survey first hand the extent of the site and its potential impacts on groundwater.

The site is a former landfill closed since 1976. There is evidence throughout of barrels having been dumped but they are very old and deteriorated. Most of the material is covered but we did see evidence of old oil tanks (with surrounding fire damage), fiberglas dumping and rusted gasoline tanks.

One point on the site had a small oil sheen on it indicating that oil had been dumped there at one time.

The newest barrels on the site may very well have been those which caught fire. These barrels may be a portion of the barrels referred to in the attached letter. This letter was given to me by Mr. Blauvelt. He said he received it from Frank Stetkiewicz, Cumberland Town Mayor, in the summer of 1980.

At this point, it appears that any barrels buried at the site would have long since deteriorated. Further, there has yet to be demonstrated groundwater pollution. As can be seen from the letter to the Environmental Protection Agency from the Town of North Attleboro, they feel that this site is the cause of their problem.

I recommend this course of action: Advise the Environmental Protection Agency and seek funding through them for a groundwater monitoring program around Boulter's Farm. This may be an interstate problem and such a program might be paid for with Federal funds. We could utilize Pawtucket's extensive mapping survey for well siting.

I do not believe that site cleanup, with perhaps the exception of those barrels burned in last week's fire, would be a feasible option.

Barry W. Muller

APPENDIX II

PREVIOUS CHEMICAL ANALYSIS OF WASTES

R.I. Analytical Laboratories, Inc.

SPECIALIZING IN ENVIRONMENTAL ANALYSIS

231 ELM STREET
WARWICK, R.I 02886

PHONE: (401) 467-2452

CERTIFICATE OF ANALYSIS

REPORT TO: Mr. John Leo
Dept. of Environmental Management
75 Davis St.
Providence, R. I. 02908

DATE RECEIVED 4/18/81
DATE REPORTED 4/24/81
PURCHASE ORDER #
R.I. A.L. INV. # 4952

SAMPLE DESCRIPTION Two (2) paint sludges from Bolter's Landfill

Per your request, subject samples have been analyzed by our laboratory in accordance with the "Toxicant Extraction Procedure" from Appendix 7 of the R. I. Proposed Hazardous Waste Generator Rules and Regulations. The following are the results of analysis performed on the leachate from this procedure:

PARAMETER	MULTI-COLORED SLUDGE	WHITE SLUDGE
Arsenic	0.026 mg/l	< 0.010 mg/l
Barium	0.8	0.5
Cadmium	< 0.005	< 0.005
Chromium (Total)	0.29	< 0.05
Lead	1.5	0.2
Mercury	< 0.0002	0.0003
Selenium	< 0.01	< 0.01
Silver	< 0.01	0.02

If you have any questions regarding this work or if we may be of further assistance, please contact us.

APPROVED BY
Anthony E. Perrotti

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
75 Davis Street - 204 Cannon Building
Providence, R. I. 02908

20 May 1981

Mr. Paul Poirier
Building Official
Town Hall
45 Broad Street
Cumberland, RI 02864

Dear Mr. Poirier:

In my letter of 1 May 1981, there was an error in the manner in which the drinking water standards were reported to you. Below is the correct drinking water standards. The concentration levels which would make any waste containing these materials a hazardous waste are reported in the right hand column.

	Drinking Water Standard	Hazardous Waste Level
Arsenic	.05 mg/l	5
Barium	1 mg/l	100
Cadmium	.01 mg/l	1
Chromium	.05 mg/l	5
Lead	.05 mg/l	5
Mercury	.002 mg/l	0.2
Selenium	.01 mg/l	1
Silver	.05 mg/l	5

It was erroneously reported to you that the levels in the right column are the drinking water standards.

I apologize for any confusion this may cause. Please contact me at 277-2808 if you have any questions.

Very truly yours,

Barry W. Muller, Prin. Engineer
Division of Air and Hazardous Materials

BWM/kz

APPENDIX III

PREVIOUS ANALYSIS OF

WELL WATER

PROJ. + E. PROV.

JUL 24 1980

EAST REGION

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

37 Shattuck Street, Lawrence, Massachusetts 01843

SOURCE A – Courtois (Wall) 3

SOURCE B – Courtois (Process) 2

SOURCE C –

SOURCE D –

SOURCE E –

NO. ATTLEBORO

COLLECTOR: Dusseault

DATE COLLECTED: July 8, 1980

DATE RECEIVED: July 8, 1980

	3 A	2 B	C	D	E
SAMPLE NO.	001833	001834			
DATE ANALYZED	7/15/80	7/15/80			
Methylene Chloride	nd	nd			
1,1 Dichloroethylene	nd	nd			
1,2 Transdichloroethylene	nd	nd			
Chloroform	nd	nd			
1,2 Dichloroethane	nd	nd			
1,1,1 Trichloroethane	nd	nd			
Carbon tetrachloride	nd	nd			
Bromodichloromethane	nd	nd			
Trichloroethylene	nd	nd			
Dibromochloroethane	nd	nd			
Bromoform	nd	nd			
Tetrachloroethylene	nd	nd			

RECEIVED
AUG 22 1980
RI DEPT. OF ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR & HAZARDOUS MATERIALS

Concentrations reported as micrograms per liter – nd: none detected

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

RECEIVED
JUL 21 1980
D.E.Q.E. SOUTHEAST REGION

37 Shattuck Street, Lawrence, Massachusetts 01843

SOURCE A – Courtoise Sand & Gravel (process water) 2
SOURCE B – Courtoise Sand & Gravel (well) 3
SOURCE C – Test Well near Penn Central R.R. 5
SOURCE D –
SOURCE E –

COLLECTOR: Dusseault
DATE COLLECTED: June 10, 1980
DATE RECEIVED: June 11, 1980

	2 A 001508	3 B 001509	5 C 001510	D	E
SAMPLE NO.	6/23/80	6/23/80	6/23/80		
DATE ANALYZED	nd	nd	nd		
Methylene Chloride	nd	nd	nd		
1,1 Dichloroethylene	nd	nd	nd		
1,2 Transdichloroethylene	0.2	nd	nd		
Chloroform	nd	nd	nd		
1,2 Dichloroethane	nd	nd	6.6		
1,1,1 Trichloroethane	nd	nd	nd		
Carbon tetrachloride	0.6	nd	nd		
Bromodichloromethane	nd	nd	nd		
Trichloroethylene	nd	nd	nd		
Dibromochloromethane	nd	nd	nd		
Bromoform	nd	nd	nd		
Tetrachloroethylene	---	---	0.9		

RECEIVED
AUG 22 1980
RI DEPT. OF ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR & HAZARDOUS MATERIALS

Concentrations reported as micrograms per liter – nd = none detected

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

37 Shattuck Street, Lawrence, Massachusetts 01843

SOURCE A – G. P. Well near Rt. 295 1 — CUMBERLAND, R. I.

SOURCE B –

SOURCE C – COLLECTOR Russell

SOURCE D – DATE COLLECTED June 10, 1980

SOURCE E – DATE RECEIVED June 11, 1980

1

	A	B	C	D	E
SAMPLE NO.	001507				
DATE ANALYZED	6/20/80				
Methylene Chloride	nd				
1,1 Dichloroethylene	nd				
1,2 Transdichloroethylene	nd				
Chloroform	nd				
1,2 Dichloroethane	nd				
1,1,1 Trichloroethane	0.9				
Carbon tetrachloride	nd				
Bromodichloromethane	nd				
Trichloroethylene	nd				
Dibromochloromethane	nd				
Bromoform	nd				
Tetrachloroethylene	0.9				

RECEIVED
AUG 22 1980
RI DEPT. OF ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR & HAZARDOUS MATERIALS

Concentrations reported as micrograms per liter – nd: none detected

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

37 Shattuck Street, Lawrence, Massachusetts 01843

RECEIVED MAY 21 1980 D.E.Q.E. SOUTHEAST REGION

SOURCE A - Test Well #8 ([illegible]) 6 — NO. ATTLEBORO
SOURCE B -
SOURCE C -
SOURCE D -
SOURCE E -

COLLECTOR: Howland
DATE COLLECTED: May 14, 1980
DATE RECEIVED: May 15, 1980

	A (6)	B	C	D	E
SAMPLE NO.	001243				
DATE ANALYZED	5/19/80				
Methylene Chloride	nd				
1,1 Dichloroethylene	nd				
1,2 Transdichloroethylene	4.9				
Chloroform	nd				
1,2 Dichloroethane	nd				
1,1,1 Trichloroethane	6.0				
Carbon tetrachloride	nd				
Bromodichloromethane	nd				
Trichloroethylene	2.1				
Dibromochloromethane	nd				
Bromoform	nd				
Tetrachloroethylene	nd				
TOC - mgm/l	0.31				

RECEIVED
AUG 21 1980
RI DEPT. OF ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR & HAZARDOUS MATERIALS

The Commonwealth of Massachusetts

Department Of Environmental Quality Engineering

Lawrence Experiment Station

37 Shattuck Street, Lawrence, Massachusetts 01843

SOURCE A – Adamsdale – G. P. Well Site (TEST WELL #8) NO. ATTLEBORO

SOURCE B –

SOURCE C –

SOURCE D –

SOURCE E –

COLLECTOR Howland

DATE COLLECTED April 24, 1980

DATE RECEIVED April 24, 1980

6

	A	B	C	D	E
SAMPLE NO.	000779				
DATE ANALYZED	4/25/80				
Methylene Chloride	nd				
1,1 Dichloroethylene	nd				
1,2 Transdichloroethylene	nd				
Chloroform	nd				
1,2 Dichloroethane	nd				
1,1,1 Trichloroethane	7.0				
Carbon tetrachloride	nd				
Bromodichloroethane	nd				
Trichloroethylene	4.1				
Dibromochloroethane	nd				
Bromoform	nd				
Tetrachloroethylene	1.1				
TOC mgm/l	1.2				

APPENDIX IV

EPA FORMS

T2070-2	PRELIMINARY ASSESSMENT
T2070-3	SITE INSPECTION REPORT
T2070-4	TENTATIVE DISPOSITION
T2070-5	FINAL STRATEGY DETERMINATION

EPA — HAZARDOUS WASTE SITE

IDENTIFICATION AND PRELIMINARY ASSESSMENT

I

(Signed by Hq)

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II *(Preliminary Assessment)*. File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force *(EN-335)*; 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: Boulter Farm Site

B. STREET *(or other identifier)*: 514 Curran Rd.

C. CITY: Cumberland

D. STATE: RI

E. ZIP CODE: 02864

F. COUNTY NAME: Providence

G. OWNER/OPERATOR *(if known)*

1. NAME: Samuel Boulter (deceased)

2. TELEPHONE NUMBER:

H. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE ☐ 6. UNKNOWN

I. SITE DESCRIPTION

Inactive gravel excuation and dumps 15-20 acres.

J. HOW IDENTIFIED *(i.e., citizen's complaints, OSHA citations, etc.)*

Complaint from Raymond Payson, N. Attleboro, Director of Public Works.

K. DATE IDENTIFIED *(mo., day, & yr.)*: February 27, 1981

L. PRINCIPAL STATE CONTACT

1. NAME: John Quinn RI DEM

2. TELEPHONE NUMBER: 8-401-277-2797

II. PRELIMINARY ASSESSMENT *(complete this section last)*

A. APPARENT SERIOUSNESS OF PROBLEM

☐ 1. HIGH ☐ 2. MEDIUM ☒ 3. LOW ☐ 4. NONE ☐ 5. UNKNOWN

B. RECOMMENDATION

☐ 1. NO ACTION NEEDED *(no hazard)*

☐ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

☒ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR: June 10, 1981
b. WILL BE PERFORMED BY: John Quinn RI DEM, Susan Hanamoto, WMB, Barbara Walsh, WMB

☒ 4. SITE INSPECTION NEEDED *(low priority)*

Scheduled for 6/10/81

C. PREPARER INFORMATION

1. NAME: Jean Mackey, Susan Hanamoto, Barbara Walsh

2. TELEPHONE NUMBER: (617) 223-5775

3. DATE *(mo., day, & yr.)*: 6/19/81

III. SITE INFORMATION

A. SITE STATUS

☐ 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)*

☒ 2. INACTIVE *(Those sites which no longer receive wastes.)*

☐ 3. OTHER *(specify)*: *(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)*

B. IS GENERATOR ON SITE?

☒ 1. NO ☐ 2. YES *(specify generator's four-digit SIC Code)*:

C. AREA OF SITE *(in acres)*: 15-20 acres

D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES

1. LATITUDE *(deg.-min.-sec.)*:

2. LONGITUDE *(deg.-min.-sec.)*:

E. ARE THERE BUILDINGS ON THE SITE?

☐ 1. NO ☒ 2. YES *(specify)*: Home of Sam Boulter family

Continue On Reverse

Continued From Front

CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

A. TRANSPORTER	B. STORER	C. TREATER	D. DISPOSER
1. RAIL	1. PILE	1. FILTRATION	1. LANDFILL
2. SHIP	2. SURFACE IMPOUNDMENT	2. INCINERATION	2. LANDFARM
3. BARGE	3. DRUMS	3. VOLUME REDUCTION	X 3. OPEN DUMP
4. TRUCK	4. TANK, ABOVE GROUND	4. RECYCLING/RECOVERY	4. SURFACE IMPOUNDMENT
5. PIPELINE	5. TANK, BELOW GROUND	5. CHEM./PHYS. TREATMENT	5. MIDNIGHT DUMPING
6. OTHER (specify):	6. OTHER (specify):	6. BIOLOGICAL TREATMENT	6. INCINERATION
		7. WASTE OIL REPROCESSING	7. UNDERGROUND INJECTION
		8. SOLVENT RECOVERY	8. OTHER (specify):
		9. OTHER (specify):	

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

Solid Waste dumping ceased in March 1975.

V. WASTE RELATED INFORMATION

A. WASTE TYPE

[ ] 1. UNKNOWN [ ] 2. LIQUID [ ] 3. SOLID [X] 4. SLUDGE [ ] 5. GAS

B. WASTE CHARACTERISTICS

[ ] 1. UNKNOWN [ ] 2. CORROSIVE [X] 3. IGNITABLE [ ] 4. RADIOACTIVE [ ] 5. HIGHLY VOLATILE
[ ] 6. TOXIC [ ] 7. REACTIVE [ ] 8. INERT [X] 9. FLAMMABLE

[ ] 10. OTHER (specify):

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

Unknown

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT: approx 25 drums	AMOUNT: unknown	AMOUNT:	AMOUNT:	AMOUNT: unknown	AMOUNT:
UNIT OF MEASURE: unknown	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:
[ ] (1) PAINT, PIGMENTS	[X] (1) OILY WASTES	[ ] (1) HALOGENATED SOLVENTS	[ ] (1) ACIDS	[ ] (1) FLYASH	[ ] (1) LABORATORY PHARMACEUT.
[ ] (2) METALS SLUDGES	[ ] (2) OTHER (specify):	[ ] (2) NON-HALOGNTD. SOLVENTS	[ ] (2) PICKLING LIQUORS	[ ] (2) ASBESTOS	[ ] (2) HOSPITAL
[ ] (3) POTW	Reported in past reports.	[ ] (3) OTHER (specify):	[ ] (3) CAUSTICS	[ ] (3) MILLING/ MINE TAILINGS	[ ] (3) RADIOACTIVE
[ ] (4) ALUMINUM SLUDGE			[ ] (4) PESTICIDES	[ ] (4) FERROUS SMLTG. WASTES	[ ] (4) MUNICIPAL
[X] (5) OTHER (specify): Red, brown, orange, and yellow paint-like substances. Analysis revealed metals; not tested for organics.			[ ] (5) DYES/INKS	[ ] (5) NON-FERROUS SMLTG. WASTES	[ ] (5) OTHER (specify):
			[ ] (6) CYANIDE	[X] (6) OTHER (specify): Combustable/ flammable solid in plastic bags reported by Lt. Pratt in memo to Chief Fougere	
			[ ] (7) PHENOLS		
			[ ] (8) HALOGENS		
			[ ] (9) PCB		
			[ ] (10) METALS		
			[ ] (11) OTHER (specify)		

Continued From Page 2

WASTE RELATED INFORMATION (continued)

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE (place in descending order of hazard).

Only scattered trash (glass, tire, shingles) remains. No evidence of previously reported barrels.

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

Currently used by local "youths" for beer drinking gathering spot, and dirt bike activities.

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD (mark 'X')	C. ALLEGED INCIDENT (mark 'X')	D. DATE OF INCIDENT (mo., day, yr.)	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH	X			
3. NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY	X			
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER	X			
8. CONTAMINATION OF SURFACE WATER				
9. DAMAGE TO FLORA/FAUNA				
10. FISH KILL				
11. CONTAMINATION OF AIR				
12. NOTICEABLE ODORS				
13. CONTAMINATION OF SOIL	X			
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION		X	4/12-13/81	Fire involved approx 25 steel & fiber board barrels containing what appeared to be a paintlike substance.
16. SPILLS/LEAKING CONTAINERS/ RUNOFF/STANDING LIQUIDS	X			
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING	X			
22. OTHER (specify):				

VII. PERMIT INFORMATION

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE.

☐ 1. NPDES PERMIT ☐ 2. SPCC PL[redacted] ☐ 3. STATE PERMIT *(specify)*: [redacted]

☐ 4. AIR PERMITS ☐ 5. LOCAL PERMIT ☐ 6. RCRA TRANSPORTER

☐ 7. RCRA STORER ☐ 8. RCRA TREATER ☐ 9. RCRA DISPOSER

☐ 10. OTHER *(specify)*: _____

B. IN COMPLIANCE?

☐ 1. YES ☐ 2. NO ☐ 3. UNKNOWN

4. WITH RESPECT TO *(list regulation name & number)*: _____

VIII. PAST REGULATORY ACTIONS

☐ A. NONE ☒ B. YES *(summarize below)*

Letter dated 6/17/76 ordering Sam Boulter to stop dumping solid waste within 10 days since he failed to apply for a license.

IX. INSPECTION ACTIVITY *(past or on-going)*

☐ A. NONE ☒ B. YES *(complete items 1,2,3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3 PERFORMED BY: (EPA/State)	4. DESCRIPTION
Inspection	12/13/76	RI DEM	Found site to be inactive noted some uncovered solid waste.

X. REMEDIAL ACTIVITY *(past or on-going)*

☐ A. NONE ☒ B. YES *(complete items 1, 2, 3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION
Clean up and security	unknown (since spring of 81)	town or owner	Remains of barrels removed or buried, site graded, boulders placed along road to prevent access.

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment *(Section II)* information on the first page of this form.

APPENDIX V

TRIP REPORT

TRIP REPORT

July 8, 1981

SUBJECT: Boulter Farm, Cumberland, Rhode Island

I. ABSTRACT

A visit to the Boulter Farm site in Cumberland, RI was made on June 10, 1981. John S. Quinn, Jr. from the RI Department of Environmental Management was our guide. Susan Hanamoto and Barbara Walsh represented the US EPA. We walked around the area which would most likely contain any source of contamination. Nothing, in terms of visible evidence that could cause contamination was observed.

II. INTRODUCTION

A. The office of Uncontrolled Waste Sites asked the Waste Management Branch to do a preliminary site investigation of the Boulter Farm site primarily to look for potential contamination of water supplies. John Hackler received a letter from Thomas E. Wright, Chief of the Division of Air and Hazardous Materials of the RI DEM requesting EPA to fund a study to determine any impacts on the Pawtucket and North Attleboro water supplies. Mr. Wright felt EPA should be involved because this is an interstate problem (RI - MA). John Hackler also received a letter from Raymond Payson, Director of the Department of Public Works for North Attleboro, MA requesting that a representative from EPA contact him so that the threat to the North Attleboro, MA and Pawtucket, RI water supplies could be further investigated and so that MA & RI could be better coordinated to try and solve the problem. The outputs from this preliminary site investigation are the filled out preliminary site assessment form, a trip report, and a site inspection report and form.

B. A literature search was performed and contacts with Local, State and Federal Offices were made before visiting the site. Once at the site we conducted a general reconnaissance of the site of the fire, areas of past solid waste dumping, and Millers River (see attached map). Our inspection was visual. No samples were taken, however, several photographs were taken.

III. SITE DESCRIPTION

The site is an inactive gravel excavation with resultant disturbed sediments and hummocky topography. The area was well vegetated with deciduous trees, shrubs, grass, and wild flowers. Growth was vigorous even on the site of the previously reported fire. Fauna observed included birds, insects, and a rabbit.

The site is approximately 15-20 acres extending from the Boulter family home to Millers River along Curran Road and Northward for approximately half a mile (see map). Power lines run across the site sub-parallel to Miller's River, crossing Curran road between the river and the Boulter home. There appeared to be a dog house and perhaps a shed north of the Boulter residence but we were unable to gain access to the immediate vicinity of the house (2 Doberman Pinschers, 1 unleashed,were on the property and the occupants did not respond to our car horn). No other structures were observed.

Current use of the site appeared to be limited to dirt bike riding and as a gathering spot for local youths. There were numerous motorcycle trails on the site and remnants of an old campfire near the site of the 4/12-13/81 fire.

The only indications of past activities on the site were the disturbed topography from gravel excavation and scattered solid waste such as old furniture, some shingles, and two rusty, empty 55 gallon drums (no markings or residue). According to J. Quinn either the owner or the town of Cumberland had cleaned up any remaining drums and waste after the 4/12-13/81 fire. No odor or visual evidence of the chemical dumping was observed.

The surficial deposits on site are poorly sorted glacial sediments containing moderately well rounded cobbles, sands, and silts. The sediments form a kame terrace according to Quinn, et al, 1948. The expected hydraulic conductivity of these sediments ranges from low in the more till-like (poorly sorted areas (10^{-7} cm/sec) to high in better sorted pockets a sands and gravels (up to 10^{0} cm/sec).

IV. Site History

According to John Quinn, this site was used as a landfill, but has been closed since 1976. Both municipal waste and some 55 gallon drums were found on April 12, 1981, about 25 metal and fiber drums caught on fire. They were badly burned so that no identification of the chemicals or where the drums came from could be ascertained. On April 16, 1981, Barry Miller and John Leo from the RI DEM, Division of Air & Hazardous Materials and Robert Blauvelt, Chief Engineer and Russ Knibb, treatment plant superintendant, of the Pawtucket Water Supply visited the Boulter Farm site. They concluded that the newest barrels were probably those that caught on fire and that any other buried barrels have probably deteriorated. Recently, the damaged barrels have been removed and the town of Cumberland has placed large boulders in front of entrances to the site to discourage motorcyclists from using the trails and kids from congregating. Since then, there has been no demonstration of groundwater contamination except that the North Attleboro Department of Public works feels that contaminants have possibly penetrated their ground water supply. In the late April 1980-early July 1980 period, the MA DEQE collected and analyzed 6 different wells in Cumberland, RI and N. Attleboro, MA (some up to 1.5 miles from the site). Very small amounts (microgram/ liter figures) of 1,2 transdichloroethylene; 1,1,1, trichloroethane; trichloroethylene; and tetrachloroethylene were found. Since then, the town of North Attleboro has continued construction of a municipal well to the south of the site. Two samples from the barrels taken after the fire were analyzed for the 8 heavy metals under the EP toxicity characteristic. Both samples were far below the maximum concentrations by RI regulations. At about the same time the results from the samples were received, Tom Wright from the RI DEM, wrote to John Hackler requesting EPA assistance to test the water supply at this site.

V. Preliminary Field Assessment

There is no evidence on the site for any current source of contamination. Any barrels or waste remaining after the fire of 4/12-13/81 have been removed. Any present threats to human health or the environment thus would be due to the possible migration of previously dumped wastes into the soil or groundwater. It should be noted that no evidence (odors, vegetative stress residues, etc.) for such contamination was found on this inspection.

If such contamination has occurred, then the most direct impact on human health and the environment considering current use is likely to result from drinking contaminated groundwater or by direct contact with contaminated sediments. There may also be some danger to air quality from contaminated dust raised by dirt bikes. Any impact on surface water is likely to be the result of discharge of contaminated groundwater into surface waters (Miller's River). No current source of direct overland discharge of contaminants into surface waters was observed.

The severity of any impact on human health or the environment cannot be assessed in the absence of data on the types of wastes dumped at the site.

VI. Preliminary Recommendations

Our preliminary recommendation is that water supply wells and Miller's River near the site be tested for evidence of contamination and that the soil in the immediate vicinity of known past chemical dumping be tested for waste residue. Our recommendation is based upon the following information:

1. Limited past dumping is known to have occurred.
2. The site has since been "cleaned-up" and no evidence of any present sources of contamination exists.
3. No sampling of residential wells immediately adjacent to the site has been performed to confirm the presence or absence of contaminated ground water from past dumping.
4. No soil analysis has been performed to confirm the presence or absence of contaminants in the soil from past dumping.

The purpose of the surface water, ground water, and soil sampling and analysis is to confirm the visual impression of our site inspection that the problem no longer exists. Testing of Miller's River (a tributary to a water supply), nearby wells, and surface sediments on the site is recommended because these are the three main pathways through which any residual contamination would directly affect human health. (i.e., by drinking contaminated water or direct contact with contaminated soil).

The number of residential or other wells in the immediate vicinity (about 1 km radius) is unknown. Preliminary data indicate there are about 5 private wells nearby. An exact determination of the number and location of wells may involve a door-to-door survey since RI does not currently keep a complete inventory of private wells.

Since no complete records of the wastes dumped exists, it is recommended that samples be tested for parameters listed in 40 CFR Part 265 Subpart F.

APPENDIX VI

BIBLIOGRAPHY

ANNOTATED BIBLIOGRAPHY

I. Reports

*Johnston, Herbert E. and Dickerman, David C., Availability of Ground Water in the Blackstone River Area, Rhode Island and Massachusetts, Water Resources Investigation, 4 - 74, U.S.G.S., Providence, Rhode Island, July, 1974 (a).

Characterizes aquifers of Boulter Farm Site area; includes results of surface and ground water testing near site; estimates potential yield, transmissivities, and demand for future water supplies; includes two hydrologic maps.

*Johnston, Herbert E., and Dickerman, David C., Geologic and Hydrologic Data for the Blackstone River Area, Rhode Island, Hydrologic Bulletin 7, U.S.G.S., Providence, Rhode Island, 1974 (b).

Contains well logs, municipal pumping data, etc., identifies four private wells (321, 322, 5, 6) near Boulter Farm but has no data more recent than 1946; surface water quality data for Miller's River and Abbott Run, sampled 1970; includes hydrologic map.

*Quinn, Alonzo, et. al., The Geology and Ground Water Resource of the Pawtucket Quadrangle, Rhode Island. Rhode Island Industrial Commission, Geological Bulletin No. 3, 1948.

Describes and maps surficial geology, bedrock geology, and ground water of the Boulter Farm site area; ground water map identifies four private wells (#321, 322, 5, 6) near the site; note that data and base maps are pre - 1948.

II. Maps

*Quinn, Alonzo W., et. al., Bedrock Geology Pawtucket Quadrangle, Rhode Island - Massachusetts, U.S.G.S., Washington, D.C., 1949.

*Chute, Newton E., Surficial Geology, Pawtucket Quadrangle, Rhode Island - Massachusetts. U.S.G.S., Washington, D.C., 1949.

Also available in Waste Management Branch map cabinet.

Topographic Map, 7 1/2 minute, Pawtucket, Rhode Island - Massachusetts, U.S.G.S., Washington, D.C., 1949, photo revised 1975.

Available in Waste Management Branch map cabinet.

*Available on loan from: U.S.G.S., WRD, Room 224, John O. Pastore Federal Building and U.S.P.O., Providence, Rhode Island, 02903, phone (401) 528-4655.

III. Other

State of Rhode Island, DEM, Site File, contact:
John Quinn, Chief, Solid Waste Management Program,
Department of Environmental Management
204 Health Building, Davis Street, Providence, Rhode Island 02908
(401) 277-2797

IV. Offices Contacted

U.S. EPA - Enforcement, Bob O'Meara, (617) 223-
Office of Uncontrolled Waste Sites, Ruth Leibman, (617) 223-

USGS - Boston, Mike Frimpter, (617) 223-2822
- Providence, David Dickerman, (401) 528-4655

RI DEM - John Quinn, Chief, Solid Waste Mangement Program
Department of Environmental Management
204 Health Building, Davis Street, Providence, Rhode Island 02908
(401) 277-2797

RI Dept. Water Res. - Drinking Water, Bruce Catterall, (401) 277-6867

MA DEQE -

Cumberland, RI - Town Clerk, (401) 728-2400

North Attleboro, MA -

Pawtucket, RI - Water Supply Board, Robert Blauvelt

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

REGION: I

SITE NUMBER (to be assigned by Hq):

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (*Section II*). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (*EN-335*); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: Boulter Farm

B. STREET (*or other identifier*): 514 Curran Rd.

C. CITY: Cumberland

D. STATE: RI

E. ZIP CODE: 02864

F. COUNTY NAME: Providence

G. SITE OPERATOR INFORMATION

1. NAME: Samuel Boulter (deceased)

2. TELEPHONE NUMBER:

3. STREET: Family Home: 514 Curran Rd.

4. CITY: Cumberland

5. STATE: RI

6. ZIP CODE: 02864

H. REALTY OWNER INFORMATION (*if different from operator of site*)

1. NAME:

2. TELEPHONE NUMBER:

3. CITY:

4. STATE:

5. ZIP CODE:

I. SITE DESCRIPTION: Inactive gravel excavation and dump. 15-20 acres

J. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION (*complete this section last*)

A. ESTIMATE DATE OF TENTATIVE DISPOSITION (*mo., day, & yr.*): 7/1/81

B. APPARENT SERIOUSNESS OF PROBLEM

☐ 1. HIGH ☐ 2. MEDIUM ☒ 3. LOW ☐ 4. NONE

pending well analysis

C. PREPARER INFORMATION

1. NAME: Barbara Walsh

2. TELEPHONE NUMBER: (617) 223-5775

3. DATE (*mo., day, & yr.*): 6/19/81

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION

1. NAME: Barbara Walsh
Susan Hanamoto

2. TITLE: Hydrogeologist
Chem. Eng.

3. ORGANIZATION: US EPA WMB

4. TELEPHONE NO. (*area code & no.*): (617) 223-5775

B. INSPECTION PARTICIPANTS

1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Barbara Walsh	US EPA WMB	(617) 223-5775
Susan Hanamoto	US EPA WMB	(617) 223-1591
John Quinn	RI DEM	(401) 277-2797

C. SITE REPRESENTATIVES INTERVIEWED (*corporate officials, workers, residents*)

1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
note: could not interview owner's wife, unleashed Doberman Pinscher on property.		

Continued From Front

INSPECTION INFORMATION (continued)

D. GENERATOR INFORMATION (sources of waste)

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE GENERATED

E. TRANSPORTER/HAULER INFORMATION

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE TRANSPORTED

F. IF WASTE IS PROCESSED ON SITE AND ALSO SHIPPED TO OTHER SITES, IDENTIFY OFF-SITE FACILITIES USED FOR DISPOSAL.

1. NAME	2. TELEPHONE NO.	3. ADDRESS

G. DATE OF INSPECTION (mo., day, & yr.)	H. TIME OF INSPECTION	I. ACCESS GAINED BY: (credentials must be shown in all cases)
6/10/81	9:30 AM	[x] 1. PERMISSION [ ] 2. WARRANT John Quinn, RI DEM

J. WEATHER (describe)

25°C Clear, Sunny, Scattered Clouds

IV. SAMPLING INFORMATION

A. Mark 'X' for the types of samples taken and indicate where they have been sent e.g., regional lab, other EPA lab, contractor, etc. and estimate when the results will be available.

1. SAMPLE TYPE	2. SAMPLE TAKEN (mark 'X')	3. SAMPLE SENT TO:	4. DATE RESULTS AVAILABLE
a. GROUNDWATER			
b. SURFACE WATER			
c. WASTE			
d. AIR			
e. RUNOFF			
f. SPILL			
g. SOIL			
h. VEGETATION			
i. OTHER (specify)		No samples taken	

B. FIELD MEASUREMENTS TAKEN (e.g., radioactivity, explosivity, PH, etc.)

1. TYPE	2. LOCATION OF MEASUREMENTS	3. RESULTS
None		

Continued From Page 2

IV. SAMPLING INFORMATION (continued)

C. PHOTOS

1. TYPE OF PHOTOS: [X] a. GROUND [ ] b. AERIAL

2. PHOTOS IN CUSTODY OF: Susan Hanamoto

D. SITE MAPPED?

[X] YES. SPECIFY LOCATION OF MAPS: published maps in WMB case file

USGS Surficial Geology Pawtucket Quad 1949
Bedrock Geology " " 1949
~~Topography 7.5'~~ " " ~~1949~~ Rev.1975

E. COORDINATES

1. LATITUDE (deg.-min.-sec.): 41° 55' 45"

2. LONGITUDE (deg.-min.-sec.): 71° 23' 00"

V. SITE INFORMATION

A. SITE STATUS

[ ] 1. ACTIVE (Those inductrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if intermittently.)

[X] 2. INACTIVE (Those sites which no longer receive wastes.)

[ ] 3. OTHER (specify): _____ (Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)

B. IS GENERATOR ON SITE?

[X] 1. NO [ ] 2. YES (specify generator's four-digit SIC Code): _____

C. AREA OF SITE (in acres): 15-20

D. ARE THERE BUILDINGS ON THE SITE?

[ ] 1. NO [X] 2. YES (specify): Boulter Home

VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

A. TRANSPORTER	B. STORER	C. TREATER	D. DISPOSER
1. RAIL	1. PILE	1. FILTRATION	1. LANDFILL
2. SHIP	2. SURFACE IMPOUNDMENT	2. INCINERATION	2. LANDFARM
3. BARGE	3. DRUMS	3. VOLUME REDUCTION	X 3. OPEN DUMP
4. TRUCK	4. TANK, ABOVE GROUND	4. RECYCLING/RECOVERY	4. SURFACE IMPOUNDMENT
5. PIPELINE	5. TANK, BELOW GROUND	5. CHEM./PHYS./TREATMENT	5. MIDNIGHT DUMPING
6. OTHER (specify):	6. OTHER (specify):	6. BIOLOGICAL TREATMENT	6. INCINERATION
		7. WASTE OIL REPROCESSING	7. UNDERGROUND INJECTION
		8. SOLVENT RECOVERY	8. OTHER (specify):
		9. OTHER (specify):	

E. SUPPLEMENTAL REPORTS: If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this for..

[ ] 1. STORAGE [ ] 2. INCINERATION [ ] 3. LANDFILL [ ] 4. SURFACE IMPOUNDMENT [ ] 5. DEEP WELL

[ ] 6. CHEM/BIO/PHYS TREATMENT [ ] 7. LANDFARM [X] 8. OPEN DUMP [ ] 9. TRANSPORTER [ ] 10. RECYCLOR/RECLAIMER

VII. WASTE RELATED INFORMATION

A. WASTE TYPE

[ ] 1. LIQUID [X] 2. SOLID [X] 3. SLUDGE [ ] 4. GAS

B. WASTE CHARACTERISTICS

[ ] 1. CORROSIVE [X] 2. IGNITABLE [ ] 3. RADIOACTIVE [ ] 4. HIGHLY VOLATILE
[ ] 5. TOXIC [ ] 6. REACTIVE [ ] 7. INERT [ ] 8. FLAMMABLE

[ ] 9. OTHER (specify):

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

No, limited analysis performed by RI Analytical Laboratories, Inc.

Continued From Front

VII. WASTE RELATED INFORMATION (continued)

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT: approx. 25 drums	AMOUNT: unknown	AMOUNT:	AMOUNT:	AMOUNT: unknown	AMOUNT:
UNIT OF MEASURE: unknown	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:
X (1) PAINT, PIGMENTS	X (1) OILY WASTES	X (1) HALOGENATED SOLVENTS	X (1) ACIDS	X (1) FLYASH	X (1) LABORATORY, PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER (specify):	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER (specify):	(3) CAUSTICS	(3) MILLING/MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMELTING WASTES	(4) MUNICIPAL
X (5) OTHER (specify):			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER (specify)
Red, brown, orange, and yellow paint-like substances Analysis revealed metals; not tested for	organics		(6) CYANIDE	X (6) OTHER (specify):	
			(7) PHENOLS	Combustable, flammable solid in plastic bags reported by Lt. Pratt in memo to Chief Fougre.	
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER (specify)		

D. LIST SUBSTANCES OF GREATEST CONCERN WHICH ARE ON THE SITE (place in descending order of hazard)

1. SUBSTANCE	2. FORM (mark 'X')			3. TOXICITY (mark 'X')				4. CAS NUMBER	5. AMOUNT	6. UNIT
	a. SOLID	b. LIQ.	c. VAPOR	a. HIGH	b. MED.	c. LOW	d. NONE			
unknown										

VIII. HAZARD DESCRIPTION

FIELD EVALUATION HAZARD DESCRIPTION: Place an 'X' in the box to indicate that the listed hazard exists. Describe the hazard in the space provided.

X A. HUMAN HEALTH HAZARDS

Potential for health hazards if soil has been contaminated or if ground water is found to be contaminated. No waste is presently on site and no residues were observed. The hazard could exist , however, if any of the waste migrated into the soil or ground water before the barrels were removed.

Continued From Page 4

III. HAZARD DESCRIPTION (continued)

☒ B. NON-WORKER INJURY/EXPOSURE The site is a popular "hang-out" for local youths and occassional dirt bikers according to J. Quinn. If waste residue is present in the soil, exposure might occur via contact with the soil and breathing in air born dust.

☐ C. WORKER INJURY/EXPOSURE

☒ D. CONTAMINATION OF WATER SUPPLY

Water supply could be contaminated if waste residue has seaped into the ground water and migrated to nearby private wells or if contaminated ground water discharges into Millers River and Abbott Run. The presence or absence of contamination would have to be determined by chemical analysis.

☒ E. CONTAMINATION OF FOOD CHAIN

No crops or livestock on property.

☒ F. CONTAMINATION OF GROUND WATER

Waste residues may have migrated into the soil and ground water before the barrels were cleaned up. Wells tested (see map) show low contaminated levels but none of these tested are located close enough to the site to rule out other sources of contamination.

☒ G. CONTAMINATION OF SURFACE WATER

Millers River runs through the site and then drains into Abbott Run, a surface drinking water source for North Attleboro. Miller's River was approx. 2 m wide x 0.1 m deep on the day of inspection. The water was clear and without noticeable odor altough there was some iron staining on the rocks and algae growth.

Continued From Front

VIII. HAZARD DESCRIPTION (continued)

☐ H. DAMAGE TO FLORA/FAUNA

None observed - to the contrary vegetation was ~~virogous~~ vigorous even in the area of the fire.

☐ I. FISH KILL

None observed

☐ J. CONTAMINATION OF AIR

None observed

☐ K. NOTICEABLE ODORS

None

☒ L. CONTAMINATION OF SOIL

None was observed - chemical analysis would be necessary to demonstrate conclusively.

☐ M. PROPERTY DAMAGE

None observed.

Continued From Page 6

III. HAZARD DESCRIPTION (continued)

[X] N. FIRE OR EXPLOSION

Fire occured on 4/12-13/81. Involved approx. 25 steel and fiber board barrels containing paint-like substances. See complete reports by Barry W. Muller, RI DEM. 4/13/81 and 4/16/81. No evidence of the fire, barrels, or waste remains at the site.

[ ] O. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUID

None observed

[ ] P. SEWER, STORM DRAIN PROBLEMS

None observed

[X] Q. EROSION PROBLEMS

Potential for gullying particularly along scattered dirt bike trails parallel to hillslope.

[ ] R. INADEQUATE SECURITY

Boulders placed along Curran Road to prevent vehicle access. Appears to be effective except for dirt bikes.

[ ] S. INCOMPATIBLE WASTES

None observed

VIII. HAZARD DESCRIPTION (continued)

[X] T. MIDNIGHT DUMPING

The source of the barrels is unknown, however, the R.I. DEM did receive an anonymous letter from an employee of a furniture finishing company stating that his firm had dumped lacquer and other wastes near Curran Road 10 years ago. The letter is unconfirmed (see Providence Journal 11/14/80).

[ ] U. OTHER (specify):

It should be noted that no actual waste or contamination was observed during this inspection. It is known, however, that leaking drums were dumped on the site and later removed. The presence or absence of any remaining contamination of the soil or ground water must be detected by chemical analysis.

IX. POPULATION DIRECTLY AFFECTED BY SITE

A. LOCATION OF POPULATION	B. APPROX. NO. OF PEOPLE AFFECTED	C. APPROX. NO. OF PEOPLE AFFECTED WITHIN UNIT AREA	D. APPROX. NO. OF BUILDINGS AFFECTED	E. DISTANCE TO SITE (specify units)
1. IN RESIDENTIAL AREAS	unknown	unknown	25-50 homes	1km
2. IN COMMERCIAL OR INDUSTRIAL AREAS				
3. IN PUBLICLY TRAVELLED AREAS				
4. PUBLIC USE AREAS (parks, schools, etc.)				

X. WATER AND HYDROLOGICAL DATA

A. DEPTH TO GROUNDWATER (specify unit)	B. DIRECTION OF FLOW	C. GROUNDWATER USE IN VICINITY
D. POTENTIAL YIELD OF AQUIFER	E. DISTANCE TO DRINKING WATER SUPPLY (specify unit of measure)	F. DIRECTION TO DRINKING WATER SUPPLY

G. TYPE OF DRINKING WATER SUPPLY

[ ] 1. NON-COMMUNITY < 15 CONNECTIONS [ ] 2. COMMUNITY (specify town): > 15 CONNECTIONS _____

[ ] 3. SURFACE WATER [ ] 4. WELL

Continue On Page 9

Continued From Page 8

X. WATER AND HYDROLOGICAL DATA (continued)

H. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE

1. WELL	2. DEPTH (specify unit)	3. LOCATION (proximity to population/buildings)	4. NON-COMMUNITY (mark 'X')	5. COMMUNITY (mark 'X')
#321 Sam. Boulter	(below surface) 50 ft.	Curran Rd. Cumberland, RI (See attached map and description)	X	
#322 Ferd. Viens	20 ft.	Curran Rd. Cumberland, RI "	X	
#6 Robt. Hirsch	34 ft.	Depot St. N. Attleboro, MA "	X	
#5 Geo. Bouffond	13 ft.	Depot St. N. Attleboro, MA "	X	
& Ernst Stevens	365 ft.	106 Curran Rd.	X	

I. RECEIVING WATER

1. NAME: Miller's River

☐ 2. SEWERS ☒ 3. STREAMS/RIVERS ☐ 4. LAKES/RESERVOIRS ☐ 5. OTHER (specify):

6. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS

Approx. 2m x 0.1 m non-navigable

XI. SOIL AND VEGITATION DATA

LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE ☐ B. KARST ZONE ☐ C. 100 YEAR FLOOD PLAIN ☐ D. WETLAND

☐ E. A REGULATED FLOODWAY ☐ F. CRITICAL HABITAT ☒ G. part of site RECHARGE ZONE OR SOLE SOURCE AQUIFER

XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

'X'	A. OVERBURDEN	'X'	B. BEDROCK (specify below)	'X'	C. OTHER (specify below)
X	1. SAND	X	Sedimentary eg., ss. of Pennsylvanian age		overburden is characterized as a Kame Terrace by Quinn et al, 1948
	2. CLAY		Quinn, et al, 1948		
X	3. GRAVEL		No outcrop observed		

XIII. SOIL PERMEABILITY

☒ A. UNKNOWN ☐ B. VERY HIGH (100,000 to 1000 cm/sec.) ☐ C. HIGH (1000 to 10 cm/sec.)

☐ D. MODERATE (10 to .1 cm/sec.) ☐ E. LOW (.1 to .001 cm/sec.) ☐ F. VERY LOW (.001 to .00001 cm/sec.)

G. RECHARGE AREA

☒ 1. YES ☐ 2. NO 3. COMMENTS:

H. DISCHARGE AREA

☒ 1. YES ☐ 2. NO 3. COMMENTS:

I. SLOPE

1. ESTIMATE % OF SLOPE: 0

2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.: Area where barrels were is approx. level. Other areas have slopes up to 50%.

J. OTHER GEOLOGICAL DATA

Moderately well rounded silts through cobbles poorly sorted.
Published transmissibility (Quinn, et al, p 47, 1948) approx. 58,850 gal/day/ft.
Thickness of glacial sedimdents > 50 ft at Boulter Well 321.

XIV. PERMIT INFORMATION

List all applicable permits held by the site and provide the related information.

A. PERMIT TYPE (e.g., RCRA, State, NPDES, etc.)	B. ISSUING AGENCY	C. PERMIT NUMBER	D. DATE ISSUED (mo., day, & yr.)	E. EXPIRATION DATE (mo., day, & yr.)	F. IN COMPLIANCE (mark 'X')		
					1. YES	2. NO	3. UNKNOWN
None known							

XV. PAST REGULATORY OR ENFORCEMENT ACTIONS

☐ NONE ☒ YES (summarize in this space)

Letter dated 6/17/76 from RI DEM ordering Sam Boulter to stop dumping solid waste within 10 days since he failed to apply for a license.

NOTE: Based on the information in Sections III through XV, fill out the Tentative Disposition *(Section II)* information on the first page of this form.

Publication: (in addition to maps cited on p.3.)

The Geology and Ground Water Resources of the Pawtucket Quadrangle, RI

Alonzo Quinn, et al
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State of Rhode Island and Providence

THE GEOLOGY AND GROUND-WATER RESOURCES of the Pawtucket Quadrangle, Rhode Island

by

ALONZO QUINN, R. G. RAY, and W. L. SEYMOUR

N. E. CHUTE, and W. B. ALLEN

Prepared in cooperation with the U. S. Geological Survey and published by permission of its Director

RHODE ISLAND INDUSTRIAL COMMISSION

GEOLOGICAL BULLETIN No. 3

1948

EXPLANATION

-100- Bedrock Contours Based on Well Information

o 323/169 Well or Test Boring ending at or in Bedrock

• 7/43 Well or Test Boring ending above Bedrock

◎ 265/110 U.S. Geological Survey, Observation Well

Upper figure is location designation

Lower figure is altitude of bedrock surface or bottom of well where well does not reach bedrock, in feet above or below (-) mean sea level

Contact of Till and Outwash Deposits

Approximate Contact of Till and Outwash Deposits

Bedrock Contour

Datum is mean

Scale 1:24,000

Table 9—Records of wells in the Pawtucket quadrangle (Continued)

TOWN OF CUMBERLAND, R. I. (Concluded.)

Well number	Owner	Location	Altitude of land surface (feet)[1]	Depth below land surface (feet)	Diameter (inches)	Pump capacity (g.p.m.)[1]	Yield (g.p.m.)[2]	Water level (feet)[3]	Hardness (p.p.m.)[4]	Water-bearing material	Materials penetrated in feet below land surface		Remarks
Cum. 305	William Rawson	Rawson Road	135	560	6	..	4	27 8/39	Hard	Rock	Sand and gravel Rock	0–55 55–560	Abandoned, formerly domestic. Dry in fall.
Cum. 306	William Rawson	Rawson Road	130	285	6	15	40	25 1044	Hard	Rock	Sand and gravel Rock	0–53 53–285	Domestic, stock, and poultry.
Cum. 308	Mrs. Edith M. Carpenter	Rawson Road	120	17	30	..	..	15[7] 8/22/46	Hard	Sand and gravel	Sand and gravel	0–17	Abandoned, formerly domestic. Low in fall.
Cum. 309	Charles Collins	Howard Road	140	28	2½	4	..	17 8/46	Hard	Sand and gravel	Sand and gravel	0–28	Domestic.
Cum. 313	C. B. Flagg	Abbott Run Valley Road	150	30	30	..	..	24 8/46	Hard	Sand and gravel	Sand and gravel Rock, at	0–30 30	Domestic and stock. Temp. 53° F.
Cum. 314	Russell Schofield	Abbott Run Valley Road	135	185	6	3	2	30 11/44	Hard	Rock	Sand Rock	0–60 60–185	Domestic.
Cum. 315	J. L. Carpenter	Abbott Run Valley Road	135	30	28	..	..	15[7] 8/22/46	Fairly soft	Sand and gravel	Sand and gravel Till, at	0–30 30	Abandoned, used as U. S. G. S. observation well.
Cum. 316	Mrs. Paul Barnard	Bear Hill Road	205	602	6	..	No water	..	..	..	Till Rock	0–17 17–602	Abandoned, no water in well.
Cum. 317	Daniel Cargill	Abbott Run Valley Road	170	6	120x 120	..	..	2[7] 8/22/46	Hard	Till	Till	0–6	Flowing spring.
Cum. 318	Girard Labonte	Scott Road	100	120	6	..	..	..	Hard	Rock	Till Rock	0–20 20–120	Domestic and stock.
Cum. 320	Mrs. Bertha Carpenter	Abbott Run Valley Road	145	289	6	..	1½	20 1015	Hard	Rock	Sand and gravel Rock	0–20 20–289	Domestic and stock. Dry in fall.
Cum. 321	Samuel P. Boulter	Curran Road off Dexter St., Valley Falls	125	50	1½	4	..	1 8/46	Soft	Sand and clay	Sand and clay Till, at	0–50 50	Domestic. Low in fall.
Cum. 322	Ferdinand Viens	Curran Rd. north of Dexter St., Valley Falls	105	20	30	..	..	16 8/46	Soft	Sand and gravel	Sand and gravel	0–20	Domestic.
Cum. 323	William Switch	Dexter St., Valley Falls	120	38	30	..	..	34[7] 8/28/46	Soft	Sand and gravel	Sand and gravel	0–38	Domestic.
Cum. 324	T. McCauley	High St., Valley Falls	100	50	30	..	..	43[7] 8/28/46	Soft	Sand and gravel	Sand and gravel	0–50	Abandoned, formerly domestic.
Cum. 325	Joseph Kulaga	Crowell Rd. off Dexter St., Valley Falls	70	35	30	4	..	30 8/46	Soft	Sand and gravel	Sand and gravel	0–35	Domestic.
Cum. 326	Carl Schleif	Bryant St., off Dexter St., Valley Falls	150	20	30	4	..	6[7] 8/28/46	Fairly hard	Till	Till Rock, at	0–20 20	Abandoned, formerly domestic.
Cum. 327	Arthur P. Carr	Highland Ave. off Dexter St., Valley Falls	125	20	30	..	..	17[7] 8/28/46	Soft	Sand and gravel	Sand and gravel Till, at	0–20 20	Abandoned, formerly domestic.

TOWN OF LINCOLN, R. I.

Lin. 1[6]	Rhode Island Dept. of Agriculture and Conservation, Office of Forests and Parks	Lincoln Woods Reservation Bathing Beach	205	191	8	14 to 15	33	12 8/44	Hard	Rock	Sand and gravel Rock	0–19 19–191	Drinking, showers, toilets.
Lin. 2	Universal Machine and Tool Co.	50 Scott Street Lonsdale	80	25	1¼	..	..	..	Soft	Gravel	Gravel	0–25	Domestic.

Table 9—Records of wells in the Pawtucket quadrangle (Concluded)

TOWN OF NORTH ATTLEBOROUGH, MASSACHUSETTS

Well number	Owner	Location	Altitude of land surface (feet)[1]	Depth below land surface (feet)	Diameter (inches)	Pump capacity (g.p.m.)[2]	Yield (g.p.m.)[3]	Water level (feet)[4]	Hardness (p.p.m.)[4]	Water-bearing material	Materials penetrated in feet below land surface		Remarks
Nos. 1	Robert Holiday	Holmes Road	245	310	6	..	..	..	Fairly hard	Rock	Till Rock	0–10 10–310	Domestic and stock.
Nos. 2	Peter Brehle	Paine Road	160	49	30	..	..	..	Hard	Sand, gravel and rock	Sand and gravel Rock	0–33 33–49	Domestic.
Nos. 3	Mrs. Matilda Holmes	Millard Road off Paine Road	190	10	30	..	..	4[7] 8/22/46	Hard	Till	Till Rock, at	0–10 10	Domestic and stock.
Nos. 4	W. Jonnison	Hawkins Road	130	28	30	..	..	22[7] 8/22/46	Hard	Sand and gravel	Sand and gravel	0–28	Domestic. Low in summer.
Nos. 5	Robert Hirsch	Depot St. north of Robbin Hollow Pond	85	13	30	..	..	12[7] 8/28/46	Soft	Sand and gravel	Sand and gravel	0–13	Abandoned, formerly domestic.
Nos. 6	George Boufford	Depot St. north of Robbin Hollow Pond	100	34	30	6	..	30[7] 8/28/46	Soft	Sand and gravel	Sand and gravel Till, at	0–34 34	Domestic.

TOWN OF PLAINVILLE, MASSACHUSETTS

Well number	Owner	Location	Altitude of land surface (feet)[1]	Depth below land surface (feet)	Diameter (inches)	Pump capacity (g.p.m.)[2]	Yield (g.p.m.)[3]	Water level (feet)[4]	Hardness (p.p.m.)[4]	Water-bearing material	Materials penetrated in feet below land surface		Remarks
Pla. 2	Arthur Malo	Allen St.	205	17	30	6	..	13[7] 7/16/46	Soft	Till	Till Rock, at	0–17 17	Domestic and stock.

[1] Altitude above sea level as determined from topographic map of Pawtucket quadrangle.

[2] Maximum reported yield in gallons per minute (g. p. m.).

[3] Reported depth below land surface.

[4] $CaCO_3$ hardness in parts per million (p. p. m.) as determined by soap method.

[5] Additional water analysis given in table 8.

[6] For additional data see well logs and descriptive notes.

[7] Measured by U. S. G. S.

[8] Additional water analysis given in table 7.

[9] Average withdrawal in gallons per day (g. p. d.).